



ORD-989-80

30 July 1980

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MEMORANDUM FOR:

██████████
NFAC ADP Control Officer

STATINTL FROM:

██████████
Data Processing Research
Office of Research and Development

SUBJECT: OER/ORD Information Processing Requirements

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1. Attached are copies of two memoranda. The first is a draft of a paper for ██████████ C/DAC/OER. This memorandum establishes a project, already under way, in partial response to a request (the second memorandum) from ██████████, then acting Director of Economic Research. (AIUO) STATINTL

2. Dr. Eckman, Director of Research and Development, wishes the draft memorandum to be revised to directly respond to the mass data storage problem. The joint OER/ORD project is not responsive to this requirement. Since ██████████ memorandum cites partial support from ODP in this area, I am in the process of coordinating the draft memorandum with ██████████ of Processing/ODP. (AIUO) STATINTL STATINTL

3. I hope to have this matter resolved within a week's time. I am aware that you will not remove the hold on the \$65,000 transferred from OER to ORD in support of this project until you have reviewed an official copy of the draft memorandum. Please advise me of any changes to this procedure. (AIUO)

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Attachments:
As Stated

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ORD-310-80

MEMORANDUM FOR: Chief, Development and Analysis Center
Office of Economic Research

THROUGH: STATINTL [REDACTED] NFAC ADP Control Officer
Director of Economic Research

FROM: Philip K. Eckman
Director of Research and Development

SUBJECT: Joint OER/ORD Information Processing Project

REFERENCES: A. ORD-160-80, dated 25 February 1980,
Subject: OER Information Processing
Requirements

B. OER memorandum dated 17 April 1980,
Subject: Joint OER/ORD Information
Processing Project

1. The project as originally proposed does not clearly establish the extent of the commitment by the two offices. As neither office can be certain of resource availability in outlying years to support a computer facility, it is better to present the joint effort within a narrower context. This memorandum is provided to that end.

2. It is this office's desire to have an evaluation performed of the utility of the relational data base management system, ORACLE, and the APL-like environment, APIS. In order to perform this evaluation ORD will loan a PDP-11/34 system to OER for the duration of the joint activity. The configuration of the system is:

- (1) PDP-11/34 with 256K bytes memory
- (2) RL-01 Disk Drives (2 5.2M bytes each) with RL-11 Controller
- (1) LA-120 DEC Writer III Keyboard/Printer
- (1) Sanders Technology Media 12/7 Printer

ORD will acquire a TS-11 1600 BPI tape drive using OER funds to be transferred to ORD for this purpose. ORD will fund the maintenance contract for the duration of the joint effort. ORD will provide the following software:

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SUBJECT: Joint OER/ORD Information Processing Project

- (1) APIS software system including:
 - ORACLE/UNIX data base management system
 - UNIX operating system with utilities
- (1) RSX-11M operating system
- (1) ORACLE/RSX-11M data base management system
- (1) "C" compiler for RSX-11M
- (1) Pascal Compiler for UNIX

ORD will acquire an APL-11 Interpreter for the RSX-11M operating system using OER funds to be transferred to ORD for this purpose.

3. Project Tasks

TASK 1 - Install and Evaluate the APIS Environment

This task is as described in reference A. It is requested OER provide a written report to ORD summarizing OER's evaluation of the environment with respect to its capabilities and system performance.

TASK 2 - Evaluate ORACLE

This task is similar in scope to that described in paragraph three of reference B. Economic data base applications will be implemented using ORACLE. It is requested a written report be provided that assesses this software's capabilities, utility, and performance from the application developer's viewpoint and system performance viewpoint.

TASK 3 - Environment Extensions

Based upon the results of the first two tasks, ORD will prepare a proposal which considers possible extensions to the software environments. These may include the integration of APL-11 with ORACLE, extensions to APIS for economic analysis, and software migration to facilitate economic analyst access.

4. In order to provide the consultative support required for tasks one and two and to prepare the proposal that is task three, ORD will contract with [REDACTED] the developer of STATINTL the APIS environment. The contractor is also knowledgeable in the use of ORACLE. Funds will be provided by OER for this purpose. The allocation of the contractor support across the three tasks will be determined by OER's specific requirements. All funds will be used in direct support of this joint activity and OER's concurrence will be required for the allocation of the funds.

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SUBJECT: Joint OER/ORD Information Processing Project

5. The time required for these tasks is approximately nine months. It is planned that the effort not exceed twelve months as no budgetary commitments have been provided beyond that period. OER's financial obligation for this period is:

• VT-100 Video Display Unit with APL character set	\$ 3,000
• APL character set for LA-120	\$ 500
• TS-11 tape drive	\$11,000
• "C" Compiler & Pascal Compiler	\$ 1,480
• APL-11 interpreter	\$ 3,450
• [REDACTED] contractor support	\$45,570 for approx. seven man-months

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6. Of long-term interest to OER is support of very large data bases. It is recommended this be pursued on a separate basis. Both ODP and NPIC have expressed an interest in optical/video disk technology. ORD is following the technology for introduction to Agency environments at the propitious moment. It is not recommended this technology be incorporated into the PDP-11/34 environment without careful analysis. While technically feasible to add such equipment to a minicomputer it does not follow that the minicomputer has the computational power to work the economic models using large amounts of data. Therefore it may not be advisable to use the PDP-11/34 system beyond the planned tasks described above.

7. Additionally, there is a need to establish a strategy for making any outgrowths from this effort available to the economic analyst. As you know analysts presently have available Ruffing Center (IBM technology) services. The SAFE system may present a second technology base with which the analysts will work. A third technology base (DEC) may not be advisable. Hence it is recommended that consideration be given to the migration of any desired tool (APIS, ORACLE, or other presently unavailable service) to the Ruffing Center or SAFE environments. In the near-term (two years) it may be preferable to limit the consideration of tool migration to the Ruffing Center.

8. As you may be aware, ORD is in the process of acquiring a VAX-11/780 computer system. This system is intended primarily as an image processing facility. A secondary function is to support work similar to the outlined joint effort. It should be possible to make this environment available to the Development and Analysis Center, via terminal, on a project basis. The VAX system will have the ability to support large data bases and will have special computational ability (e.g., array processors) such as

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that required for imagery work or large economic models. This topic should be pursued between the DAC/OER and DPR/ORD.

STATINTL [REDACTED] Chief IPE/DPR, will assist you in this area.

Philip K. Eckman

Attachments:

References A and B

Distribution:

Orig - Addee

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- 1 - [REDACTED]
- 1 - D/OER
- 1 - D/ORD
- 1 - Project File
- 1 - DPR Chrono
- 1 - BSS Chrono
- 1 - ORD Registry

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DPR/ORD/DD/S&T/[REDACTED] [REDACTED]

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26 DEC 1979

MEMORANDUM FOR: Dr. Philip K. Eckman
Director of Research and Development

FROM: Acting Director of Economic Research

SUBJECT: Request for Research Support

1. I would appreciate your help in identifying methods for implementing a very large computer storage system. The objective of the project will be to identify within six months a configuration of hardware and software that will satisfy OER's immediate and long-term requirements for a very large computer data base system, and that can be implemented by January 1981.

2. The problem this project will address is how to make effective use of the 20 billion bytes of machine-readable economic data that form the basis of much of OER's research and intelligence production. We now use computer tapes as our primary storage medium and the CROSSTABS software package as our primary data access method. With single jobs calling for as many as 40 tape mounts, the system is not very responsive. Worse still, deterioration of and damage to our 2300 reels of tape in the Ruffing Center force us to spend more time recreating data than we do analyzing them.

3. The Office of Data Processing (ODP) recognizes our problems with the tapes. They recently offered us disk storage for all our data, but on the condition that we find an acceptable means of storing and retrieving the data. We have two packages--APLDI and RAMIS--that are effective for data bases of more modest dimensions, but they cannot satisfy our requirements for the entire OER data base. We think that some of the developing relational data base management systems

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and new storage hardware may be able to satisfy our requirements. Knowing ORD is working in both these areas, we turn to you for help.

4. Any help you choose to give us probably can be subsumed in existing requirements. In 1978 OER submitted a request for the DDS&T to develop a machine storage system, including software. We most recently confirmed this requirement in July 1979 to NFAC's Coordinator for R&D Support and accorded the project our highest priority in the data-handling category. Messrs. [REDACTED] and [REDACTED] will be OER's technical experts on the project.

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OER:DAC:[REDACTED]:skf:20Dec79:[REDACTED]

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